

WHAT IS CLAIMED IS:

1. A data transmission apparatus for performing data communication based on optical transmission, comprising:
 - a transmitting unit for converting and sending electric communication data, which is to be transmitted, into optical communication data;
 - a photoelectric conversion circuit for receiving said optical communication data and converting said received optical communication data into said electric communication data; and
 - a variable setting unit for setting said photoelectric conversion circuit to generate predetermined electric communication data in response to a level of predetermined optical communication data.
2. A data transmission apparatus as claimed in claim 1, wherein said photoelectric conversion circuit comprises:
 - a light receiving unit for generating a current based on said received optical communication data; and
 - a signal generating unit for generating said electric signal based on said current generated by said light receiving unit, and
 - said variable setting unit comprises: a variable current supply for setting said photoelectric conversion circuit by subtracting a predetermined current value from a current value indicating magnitude of said current generated by said light receiving unit.
3. A data transmission apparatus as claimed in claim 1,

wherein said photoelectric conversion circuit comprises:

a light receiving unit for generating a current based on said received optical communication data; and

a comparator for comparing a current value, which indicates magnitude of said current generated by said light receiving unit, with a reference current and generating said electric communication data; and

said variable setting unit comprises: a variable current supply for setting said photoelectric conversion circuit by adding a predetermined current value to said reference current.

4. A data transmission apparatus as claimed in claim 1 further comprising:

a plurality of said transmitting units;

a plurality of optical waveguides for propagating pieces of said optical communication data sent from said transmitting units respectively; and

a plurality of said photoelectric conversion circuits in response to said transmitting units respectively,

wherein each of said variable setting units of said photoelectric conversion circuits sets said corresponding photoelectric conversion circuit to generate predetermined electric communication data in response to a level of predetermined optical communication data.

5. A data transmission apparatus as claimed in claim 1, wherein said variable setting unit sets said photoelectric conversion circuit based on a transmission delay time of said optical communication data and electric communication data between said corresponding transmitting unit and

photoelectric conversion circuit.

6. A data transmission apparatus as claimed in claim 5, wherein said variable setting unit sets said photoelectric conversion circuit further based on attenuation of said optical communication data with regard to said corresponding optical waveguide.

7. A data transmission apparatus as claimed in claim 6, wherein said variable setting unit sets said photoelectric conversion circuit further based on electro-optic conversion efficiency of said electric communication data with regard to said corresponding transmitting unit.

8. A data transmission apparatus as claimed in claim 7, wherein said variable setting unit sets said photoelectric conversion circuit further based on photoelectric conversion efficiency of said optical communication data with regard to said corresponding photoelectric conversion circuit.

9. A data transmission apparatus as claimed in claim 2, wherein said optical communication data is digital data, and said variable current supply subtracts a current value, which is substantially half said current generated by said light receiving unit when said optical communication data indicates H logic, from said current value generated by said light receiving unit.

10. A data transmission apparatus as claimed in claim 2, wherein said optical communication data is digital data, and said variable current supply subtracts a substantially

average current value of said current, which is generated by said light receiving unit when said optical communication data indicates H logic, and said current, which is generated by said light receiving unit when said optical communication data indicates L logic, from said current value indicating said magnitude of said current generated by said light receiving unit.

11. A data transmission apparatus as claimed in claim 3, wherein said optical communication data is digital data, and
 said variable current supply adds a current value, which is substantially half said current generated by said light receiving unit when said optical communication data indicates H logic, to a value of said reference current.

12. A data transmission apparatus as claimed in claim 3, wherein said optical communication data is digital data, and
 said variable current supply adds a substantially average current value of said current, which is generated by said light receiving unit when said optical communication data indicates H logic, and said current, which is generated by said light receiving unit when said optical communication data indicates L logic, to a value of said reference current.

13. A data transmission apparatus as claimed in one of claims 1 to 10, wherein said transmitting unit comprises:

 a laser diode for generating said optical communication data based on said electric communication data; and

 a bias current supply for supplying a bias current larger than a laser oscillation threshold current of said laser diode to said laser diode.

14. A test apparatus for testing an electronic device, comprising:

- a pattern generating unit for generating a test signal to test said electronic device;

- a waveform adjusting unit for adjusting said test signal;

- a test head for contacting said electronic device;

- a data transmission apparatus for transmitting data between said waveform adjusting unit and said test head; and

- a judging unit for judging quality of said electronic device based on an output signal outputted by said electronic device in response to said test signal,

wherein said data transmission apparatus comprises:

- a transmitting unit for converting and sending said test signal into optical communication data;

- a photoelectric conversion circuit for receiving said optical communication data and converting said received optical communication data into said test signal; and

- a variable setting unit for setting said photoelectric conversion circuit to generate a predetermined test signal in response to a level of predetermined optical communication data.

15. A photoelectric conversion circuit for receiving light and converting said received light into electricity, comprising:

- a photodiode for generating a current based on said received light; and

- a variable current supply for generating a current to offset said current generated by said photodiode.